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CLAIMS

1. A method for operating a radio communication system (100) including at least one base station (102) and at least one mobile station (104, 130), the method comprising the steps of:

at a base station, transmitting first predetermined data symbols and unknown data symbols (306);

at the base station, selectively transmitting second predetermined data symbols (308);

at the base station, transmitting an indication when transmission of the second predetermined data symbols is not guaranteed (312);

at a mobile station,

decoding the unknown data symbols using only the first predetermined data symbols when the indication is transmitted (516); and

decoding the unknown data symbols using at least one of the first predetermined data symbols and the second predetermined data symbols when no indication is transmitted (514).

2. The method of claim 1 wherein the first predetermined data symbols comprise a synchronization word (212) for a current time slot (202).

3. The method of claim 1 wherein the second predetermined data symbols comprise a synchronization word (214) for a subsequent time slot (204).

4. The method of claim 1 wherein transmitting the indication includes:
at the base station, transmitting the indication when the base station suspends transmission of a synchronization word during a subsequent time slot (316).

5. The method of claim 1 wherein transmitting the indication includes:

transmitting the indication when the base station can not guarantee transmission of the second predetermined data symbols with any of: reliable timing, reliable phase, reliable amplitude and reliable direction continuity.

6. The method of claim 1 further comprising the steps of:
at the mobile station, transmitting an indicator, the indicator indicating that the mobile station expects transmission of the second predetermined data symbols (406); and
at the base station, in response to the indicator, reliably transmitting the second predetermined data symbols (308).

7. The method of claim 6 wherein the indicator comprises a predetermined data pattern.

8. The method of claim 6 wherein the indicator comprises an operational mode indicator for the mobile station.

9. The method of claim 6 wherein the indicator comprises an identifier for the mobile station and further comprising the steps of:

at the base station, in response to the identifier, determining transmission requirements for the mobile station (304); and
transmitting the predetermined second data symbols in response to the transmission requirements for the mobile station (308).

10. The method of claim 9 wherein the transmission requirements are retrieved from a subscriber database.

11. A mobile station (130) operable in a radio communication system (100) including one or more base stations (102) transmitting during a succession of time slots (202, 304, 206), the mobile station comprising:

a decoder (154) configured to identify in transmissions from the one or more base stations an indication whether a subsequent time slot can be relied on for reception; and

611 a demodulator (152) for demodulating transmissions during a current time slot from the one or more base stations according to a one of a first algorithm and a second algorithm in accordance with the indication.

12. The mobile station of claim 11 wherein the decoder is configured to identify the indication in data received from the one or more base stations.

62 13. The mobile station of claim 12 wherein the decoder is configured to identify the indication in data received from the one or more base stations during initiation of two way communication between the mobile station and the one or more base stations.

14. The mobile station of claim 11 wherein the decoder is configured to identify the indication in the subsequent time slot.

15. The mobile station of claim 11 further comprising:
a transmitter (160) for transmitting signals to the remote base station;
and
a circuit (164) configured to format data for communication to the remote base station, the data including an indicator which indicates to the base station whether the mobile station accepts transmissions of the first type.

16. A base station (102) configured for operation in a radio communication system, the base station for transmitting signals to one or more mobile stations (104, 130) in a predetermined geographic region, the mobile stations being of one of a first type and a second type, the base station comprising:

first means (110) for determining a type of a particular mobile station in radio communication with the base station;

second means (110) for determining a type of another mobile station in radio communication with the base station; and

means (110, 112) responsive to the type of the particular mobile station for transmitting

(a) radio signals to the particular mobile station during a current time slot (202) and during at least a part of a subsequent time slot (204) when the particular mobile station is of the first type, and

(b) radio signals to the particular mobile station during a current time slot and radio signals adapted to the type of the other mobile station when the particular mobile station is of a second type.

17. The base station of claim 16 wherein the first means for determining comprises a circuit configured to determine the type of the particular mobile station based on a transmission from the mobile station.

18. The base station of claim 16 wherein the means for transmitting adapts the radio signals according to one of changing a power level of transmission in the subsequent time slot, changing a phase of transmission in the subsequent time slot, changing timing of transmission in a subsequent time slot, changing direction of transmission in the subsequent time slot, changing modulation of transmission, and changing burst format of transmission in the subsequent time slot.

19. A time division multiple access (TDMA) radio communication system (100) comprising:

at least one base station (102) to transmit radio signals during a succession of time slots (202, 204, 206) including a current time slot and a subsequent time slot, the radio signals including an indication of whether transmission of the subsequent time slot is guaranteed;

at least one mobile station (104, 130) to receive the radio signals in accordance with the indication.

20. The TDMA radio communication system of claim 19 wherein the at least one mobile station comprises a circuit (154) to decode the radio signals using information in the current time slot and information in the subsequent time slot when

61 the indication indicates that the transmission of the subsequent time slot is guaranteed.

62 21. The TDMA radio communication system of claim 19 wherein the at least one base station includes a circuit (114) for receiving a signal from a particular mobile station of the at least one mobile station indicative of a type of the particular mobile station, the mobile station being one of a type that requires guaranteed transmission of the subsequent time slot and of a type that does not require guaranteed transmission of the subsequent time slot.
